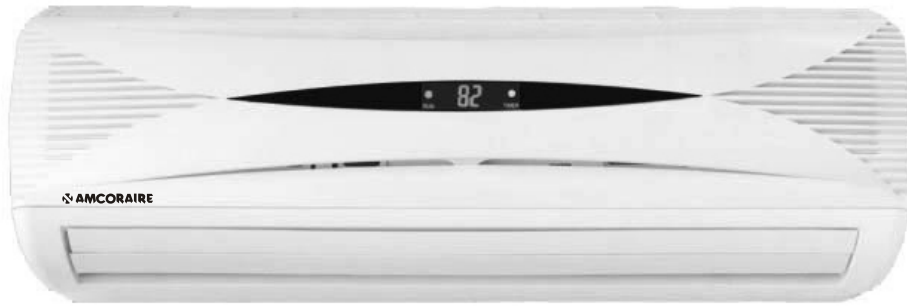


AWM 093HX AWM 123HX
AOM 183HX AOM 243HX



AWM093HX
AWM123HX



AOM183HX
(match AWM093HX+AWM093HX)



AOM243HX
(match AWM123HX+AWM123HX or AWM093HX+AWM123HX)

Installation manual

Foreword

This instruction Manual is the universal–purpose version for the models of separate wall–mounted air conditioners manufactured by our Co. The appearance of the units that you purchase might be slightly different from the ones described in the Manual , but it does not affect your proper operations and usage.

Please read carefully the sections corresponding to the specific model you choose, and keep the Manual properly so as to facilitate your reference at later time.

IMPORTANT!

Please Read Before Starting

This air conditioning system meets strict safety and operating standards.

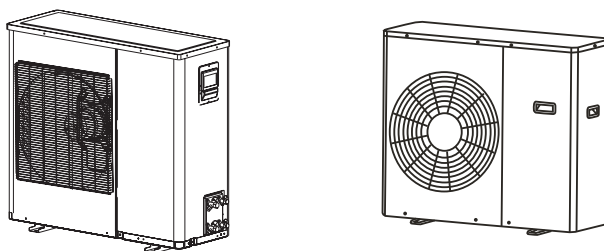
As the installer or service person , it is an important part of your job to install or service the system so it operates safely and efficiently.

For safe installation and trouble–free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all danger, warning, and caution notices given in this manual.

WARNING: This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

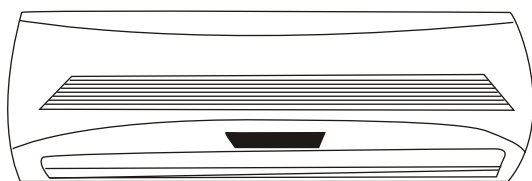
CAUTION: This symbol refers to a hazard or unsafe practice which can result in personal injury and the potential for product or property damage.



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This Split Air Conditioner is designed for versatile application :



Cooling & Heating



Dehumidifying



Ventilation



Filtration

IMPORTANT NOTICE :

- This air conditioner must be grounded to protect against electrical shock.
- Installation of the air conditioner must be performed by an experienced air conditioning installer, observing good refrigeration practice.
- Failure to comply with the manufacturer's installation and operation instructions could affect the performance of the air conditioner and the validity of the warranty.

SELECTING THE MOUNTING POSITION

Decide the mounting position with the customer as follows:

INDOOR UNIT

- (1) Install the indoor unit level on a strong wall which is not subject to vibration.
- (2) The inlet and outlet ports should not be obstructed : the air should be able to blow all over the room.
- (3) Do not install the unit where it will be exposed to direct sunlight .
- (4) Install the unit where connection to the outdoor unit is easy.
- (5) Install the unit where the drain pipe can be easily installed.
- (6) Take servicing, etc. into consideration and leave the spaces shown in figure . Also install the unit where the filter can be removed.



WARNING

Install at a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will not topple or fall.



CAUTION

- (1) Do not install where there is the danger of combustible gas leakage.
- (2) Do not install near heat sources.
- (3) If children under 10 years old may approach the unit , take preventive measures so that they cannot reach the unit.

INSTALLATION DIAGRAM OF INDOOR UNITS

Wall-mounted Type

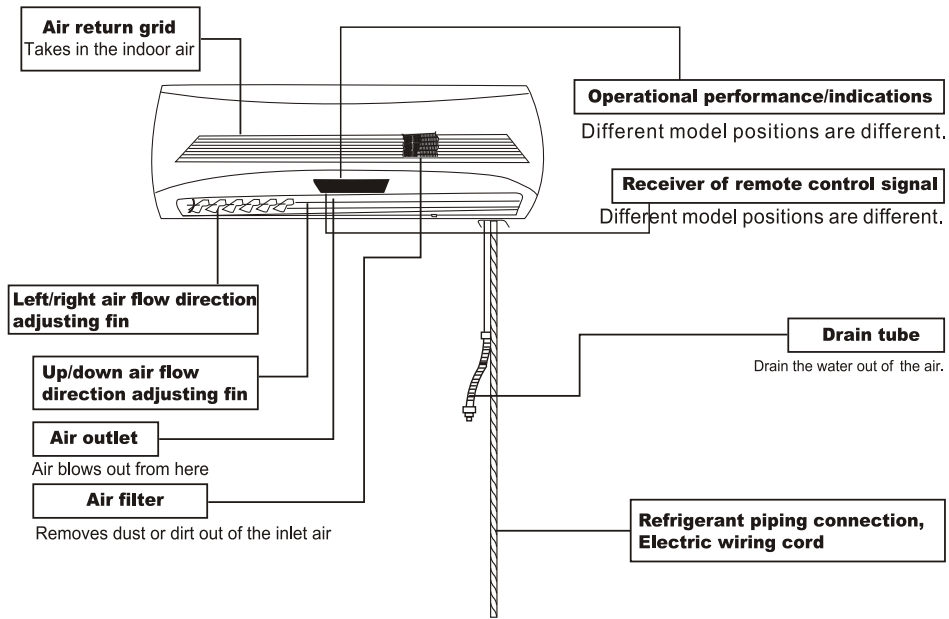


Fig 1

Indoor unit

1. Firmly install it on the rigid wall.
2. The air intake and outlet vents should be unblocked, and the cold air can be blown to the whole room.
3. Away from thermal sources or sources of combustible gases.
4. Not exposed to direct sunlight.
5. Enough margin should be left around the unit to facilitate maintenance.

(Fig 2 shows the recommended minimum dimensions)

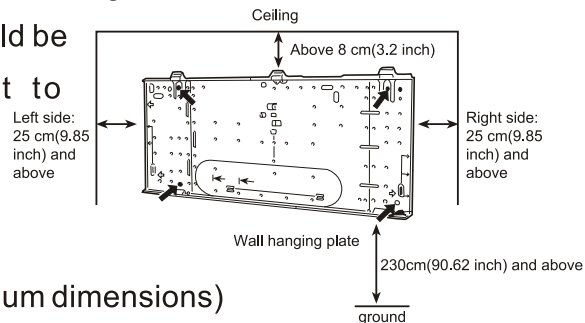


Fig 2

Installation of wall-mounting plate

Fix the wall-mounting plate firmly on the wall with screws. Make sure of the leveling of the place. Slanted wall-mounting plate might jeopardize the smooth discharge of condensed water.

1. Drill holes on the wall

Drill holes places slightly below the wall-mounting plate, with hole diameter of 65mm and the outer edge of the hole 5-10mm lower (Fig3) so that the condensed water can smoothly flow out. Cut the wall penetrating pipe to proper length according to the thickness of the wall (3-5mm longer than the wall thickness) and insert the pipe as indicated in Fig 4.

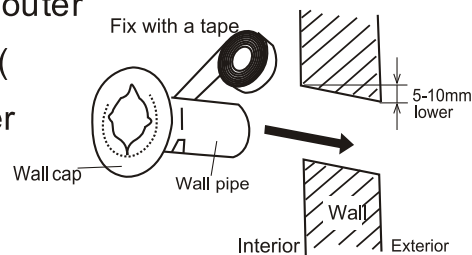


Fig 3

2. Installation of drain pipe

Install the pipelines of the indoor unit in accordance with the direction of the wall holes.

Wrap tightly the drain pipe and the pipelines with tape.

Make sure that the drain pipe is underneath the pipelines, (Fig 4) (When the drain pipe passes the room interior, some condensed water might occur to its surfaces if the humidity is very high).

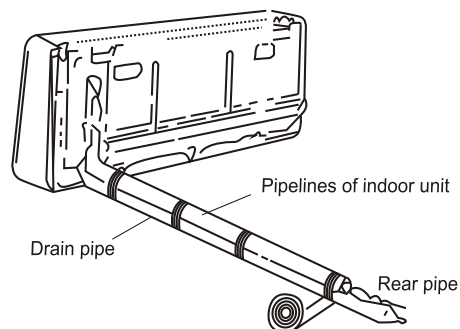


Fig 4

3. Installation of indoor unit pass the connection wires, connecting pipelines and drain pipe through the wall hole. Hang the indoor unit

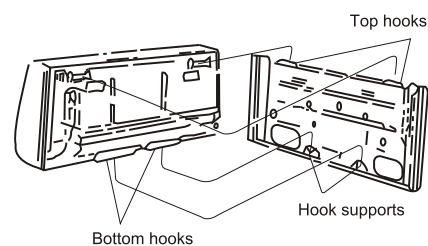


Fig 5

on the hooks at the top of the wall-mounting plate so that the hooks at the bottom of the indoor unit match the hooks of the wall-mounting plate. (Fig 5)

Inspections:

- a. See if the hooks at the top and bottom are firmly fixed.
- b. See if the position of the master unit is properly leveled.

c. The drain pipe should not curve upward(Fig 6).

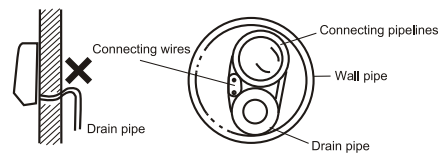


Fig 6

- d. The drain pipe should be at the lower part of the wall pipes(Fig 6).
4. Wire connections of indoor and outdoor units connect the wires of the indoor and outdoor units properly according to the schematic diagram.

Note: Do not connect the wires in a wrong way , otherwise electric malfunctions will be caused and ever damages to the units will occur.

The appliance is fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under over voltage category III conditions, and these means must be incorporated in the fixed wiring in accordance with the wiring rules.

Installation of the connection pipe

1. Align the center of the piping flare with the relevant valve.
2. Screw in the flare nut by hand and then tighter the nut with spanner and torque wrench refer to the diagram at right .

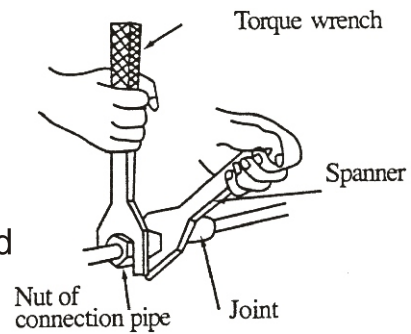


Fig 7

Note: Exceeding tightening torque will damage the flare surface.

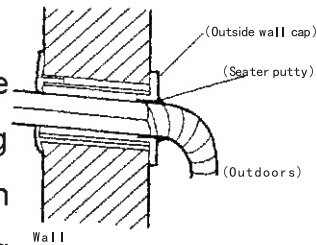
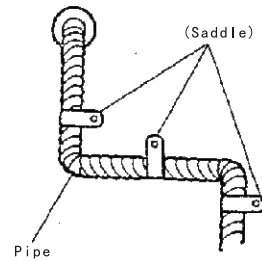
Tightening torque table

Hex nut diameter	Tightening torque(N.m)
ϕ 6mm(1/4")	15-20
ϕ 9.5mm(3/8")	31-35
ϕ 12mm(1/2 ")	50-55

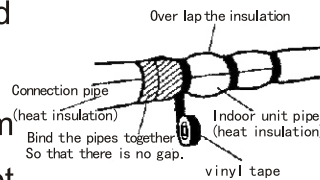
FINISHING

1. Insulate between pipes.

- For rear, right, and between piping, overlap the connection pipe heat insulation and indoor unit pipe heat insulation and bind them with vinyl tape so that there is no gap.
- For left and left rear piping, bundle the connection pipe heat insulation and indoor unit pipe heat insulation together and bind them with vinyl tape so that there is no gap.
- For left and left rear piping, bundle the piping and drain hose together by wrapping them with cloth tape over the range within which they fit into the rear piping hosing section.

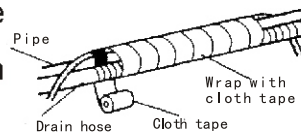


- ### 2. Temporarily fasten the connection cord along the connection pipe with vinyl tape. (Wrap to about 1/3 the width of the tape from the bottom of the pipe so that water does not enter.)



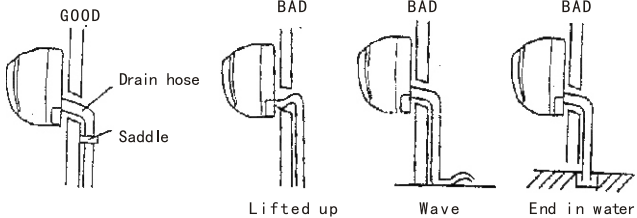
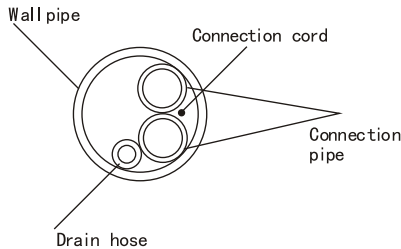
- ### 3. Fasten the connection pipe to the outside wall with a saddle etc.

- ### 4. Fill the gap between the outside wall pipe hole and the pipe with sealer so that rain water and wind cannot blow in.



- ### 5. Fasten the drain hose to the outside wall, etc.

For connection from the left rear Check the following: View from indoors



FRONT PANEL REMOVAL AND INSTALLATION

AIR CLEANING UNIT REMOVAL

1. Open the intake grille ,and then remove the right air filter.
2. Pull the air cleaning unit grip in the direction of the arrow and remove the unit .

AIR CLEANING UNIT INSTALLATION

1. Open the intake grille, and then insert the dust collection unit into the indoor unit.
2. Install the right air filter, and then close the intake grille.

THE INTAKE GRILLE REMOVAL

1. Open the intake grille.
2. Pull down the knob.
3. Lift the intake grille upward, until the axle at the top of the intake grille is removed .

THE INTAKE GRILLE INSTALLATION

1. The fixing axle of the intake grille is installed on the Panel.
2. Lay down the intake grille.

THE FRONT PANEL REMOVAL

1. Remove intake grille (Reference the intake grille removal.)
2. Remove four screws.
3. The thumb is hung on the lower part as shown in the figure , and it pulls to the front , pushing [▽] mark,and bottom hooks (two position)is removed from wall hook bracket.
4. The front panel bottom is pulled to the front, and bottom hooks is removed indoor unit.
5. The front panel is pulled to the front , raising the upper surface, and a front panel is removed.

THE FRONT PANEL INSTALLATION

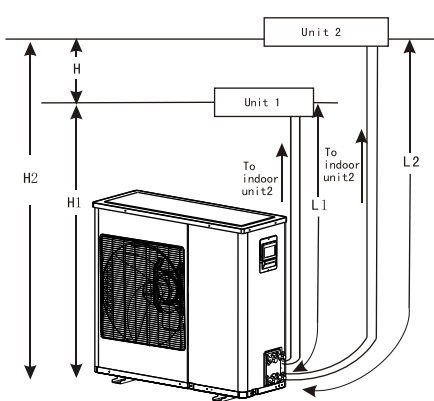
1. Firstly, fit the lower part of the front panel ,and insert top and bottom hooks.(Three top sides, six bottom sides)
2. Four screws is attached.
3. The intake grille is attached.

LOCATION OF OUTDOOR UNIT

Select the location considering the following:

OUTDOOR UNIT

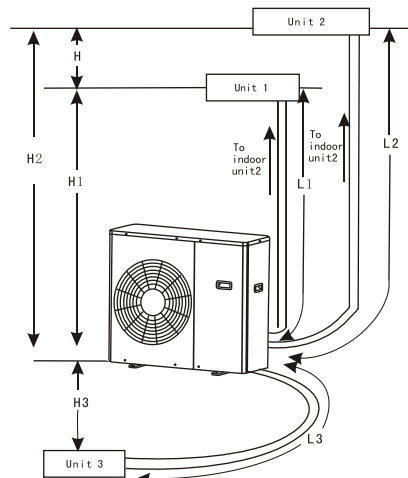
1. The location must allow easy servicing and provide good air circulation as shown in fig 8.
2. The unit may be suspended from a wall by a bracketed (Optional) or located in a free standing position on the floor (preferably slightly elevated).
3. If the unit is suspended, ensure that the bracket is firmly connected and the wall is strong enough to withstand vibrations.
4. Unit location should not disturb neighbours with noise or exhaust air stream.
5. Place the mounting pads under the unit legs.
6. Refer to figure 9 for allowed installation distances.



$$L_1, L_2 \leq 25\text{m (82FT)}$$

$$L_1 + L_2 \leq 30\text{m (100FT)}$$

$$H_1, H_2 \leq 10\text{m (33FT)}$$



$$L_1, L_2, L_3 \leq 25\text{m (82FT)}$$

$$L_1 + L_2 + L_3 \leq 50\text{m (164FT)}$$

$$H_1, H_2, H_3 \leq 10\text{m (33FT)}$$

Fig 8

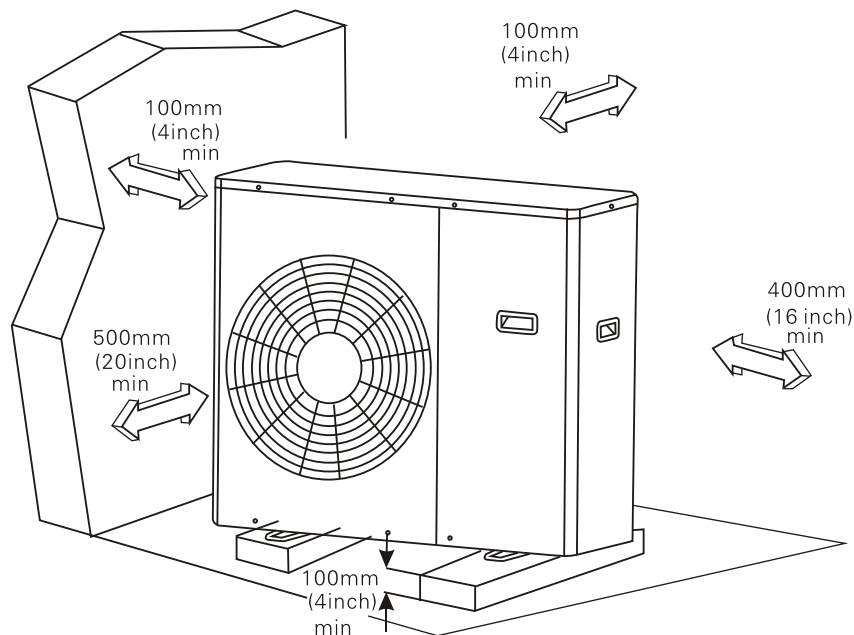


Fig 9

ELECTRICAL CONNECTION BETWEEN OUTDOOR AND INDOOR UNIT

ELECTRICAL REQUIREMENTS

Electrical wiring and connections should be made by qualified electricians and in accordance with local electrical codes and regulation. The air conditioner units must be grounded.

The air conditioner units must be connected to an adequate power outlet from a separate branch circuit protected by a time delay circuit breaker, as specified on unit's nameplate.

Voltage should not vary beyond $\pm 10\%$ of the rated voltage.

1. Remove the power supply cable that is connected to the indoor unit!
2. To connect the indoor units to the outdoor units, use the following electrical cables.

Electrical connections:

Power input cable: 1 group 3 wires \times 14AWG

cable between indoor and

outdoor units: 2 group 4 wires \times 14AWG (some models are 2 group 2 wires \times 14AWG)

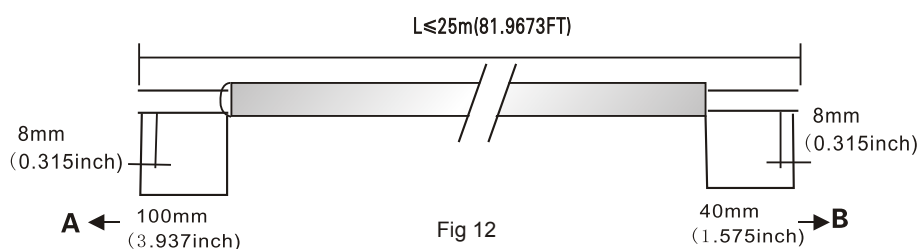
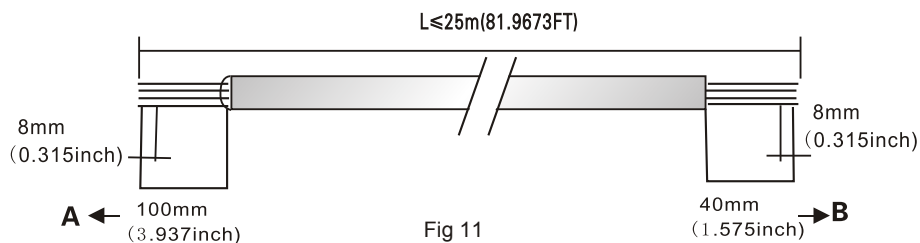
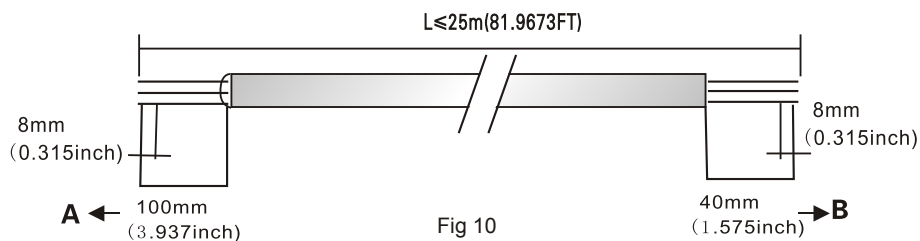
3. Prepare the cable ends for the power input and for the cables between outdoor and indoor units as shown in figure 3a and 3b respectively.

4. Connect the cable ends to the terminals of the indoor and outdoor units, as show in fig4, fig5.

Please select corresponding connection according to the different indoor units.

5. Secure the multiple wire power cable with the cable clamps.

●Power input cable



For North America Model: Fig 13.14

WIRE AND PIPE CONNECTIONS FOR DUAL INVERT

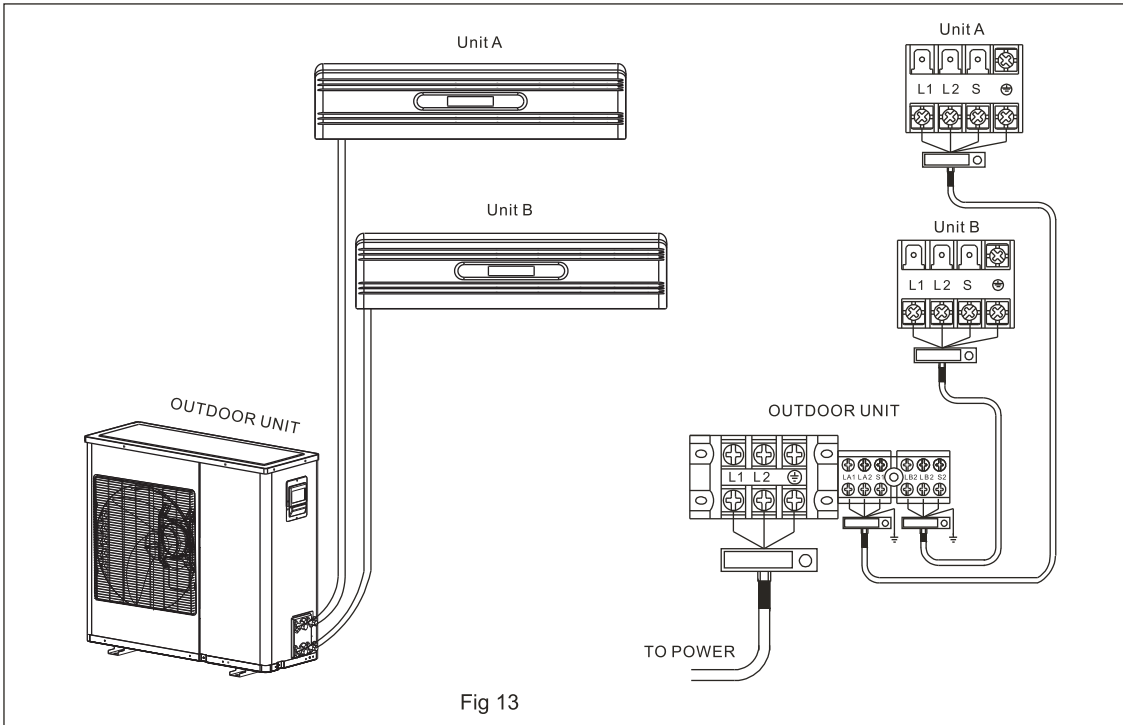


Fig 13

Electrical connections:

Power input cable: 1 group 3 wires×14AWG

cable between indoor an outdoor units: 2 group 4 wires×14AWG

This figure adapt to AOM183HX(AWM093HX+AWM093HX)

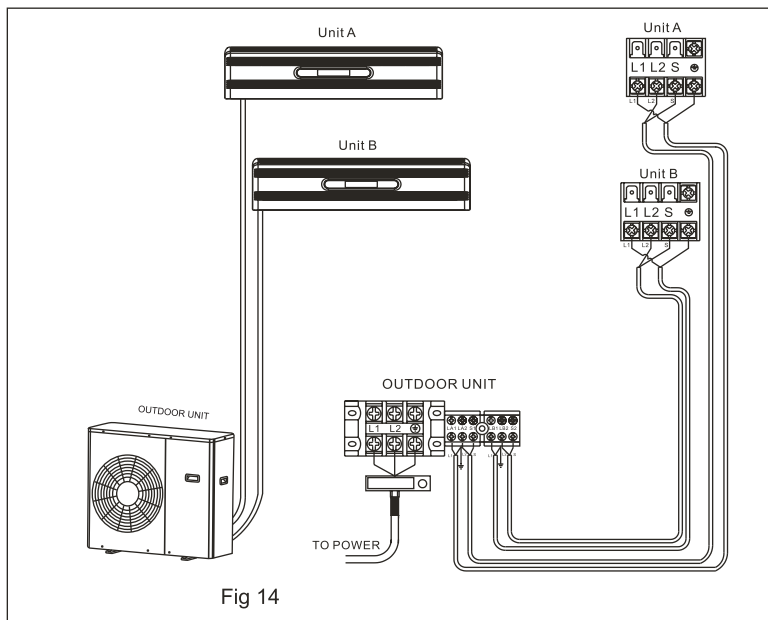


Fig 14

Electrical connections:

Power input cable: 1 group 3 wires×14AWG

cable between indoor and outdoor units: 2 group 2 wires×14AWG

This figure adapt to AOM243HX(AWM123HX+AWM123HX or AWM093HX+AWM123HX)

INSTALLATION/SERVICE TOOLS(ONLY FOR R410A PRODUCT)

CAUTION

New Refrigerant Air Conditioner Installation

This air conditioner adopts the new HFC refrigerant (R410A) which does not destroy ozone layer. R410A refrigerant is approx . 1.6 times of refrigerant R22. Accompanied with the adoption of the new refrigerant , the refrigeration machine oil has also been changed.

Therefore,during installation work, be sure that water , dust , former refrigerant , or refrigeration machine oil does not enter into the new type refrigerant R410A air conditioner circuit.The system must not be left open to the atmosphere for any reason for any period of time as the systems oil quickly absorbs moisture and will contaminate and damage the system.

A refrigerant liquid line drier is recommended.

To prevent mixing of refrigerant or refrigerating machine oil ,the sizes of conneting sections of charging port on main unit and installation tools are different from those used for the conventional refrigerant units. Accordingly,special tools are required for the new refrigerant (R410A) units, For connecting pipes use new and clean piping materials with high pressure fitting made for R410A only, so that water and/or dust does not enter.Moreover, do not use the existing piping because there are some problems with presure fittings and possible impurities in existing piping .

Changes in the product and components

In air conditioners using R410A ,in order to prevent any other refrigerant from being accedentally charged .the service port diameter size of the outdoor unit control valve (3 way valve) has been changed. (1/2 UFN 20 threads per inch)

- In order to increase the pressure resisting strength of the refrigerant piping ,flare processing diameter and opposing flare nuts sizes have been changed.(fot copper pipes with nomensions 1/2 and 5/8)

New tools for R410A

New tools for R410A	Changes
Gauge manifold	As the working pressure is high , it is impossible to measure the working pressure using conventional gauges. In order to prevent any other refrigerant from being charged,any other refrigerant from being charged, the port diameters have been changed.
Charge hose	In order to increase pressure resisting strength. hose materials and port sizes have been changed(to 1/2 UNF 20 threads per inch).When purchasing a charge hose,be sure to confirm the port size.
Electronic balance for refrigerant charging	As working pressure is high and gasification speed is fast , it is difficult to read the indicated value by means of charging cylinder ,as air bubbles occur.
Torque wrench (nominal dia.1/4,3/8)	The size of opposing flare nuts have been increased , incidentally,a common wrench is used for nominal diameters 1/4 and 3/8.
Flare tool(clutch type)	By increasing the clamp bar'receiving hole size , strength of spring in the tool has been improved.
Gauge for projection adjustment	Used when flare is made by using conventional flare tool.
Vacuum pump adapter	Connected to conventional vacuum pump,it is necessary to use an adapter to prevent vacuum pump oil from flowing back into the charge hose , The charge hose connecting part has two ports—one for conventional refrigerant (7/16 UNF 20 threads per inch)and one for R410A ,if the vacuum pump oil (mineral)mixes with R410A a sludge may occur and damage the equipment.
Gas leakage detector	Exclusive for HFC refrigerant

- Incidentally,the "refrigerant cylinder"comes with the refrigerant designation(R410A)and protector coating in the U.S's ARI specified rose color (Ari color code; PMS 507).
- Also the "charge port and packing for refrigerant cylinder"requires 1/2 UNF 20 threads per inch corresponding to the charge port's port size.

REFRIGERANT TUBING

CONNECT THE INDOOR TO THE OUTDOOR UNIT

The indoor unit contains a small quantity of nitrogen. Do not unscrew the nuts from the unit until you are ready to connect the tubing. The outdoor unit is supplied with sufficient refrigerant charge (R410A). Refer to outdoor unit nameplate.

To prevent crushing, bend tubes using a bending tool.

NOTE: Use refrigeration R410A type copper tubing only.

1. Open the valve cover.
2. Use tubing diameter that corresponds to the tubing diameter of the indoor and outdoor units. Note that the liquid and suction tubes have different diameters. (See tube size, torque tightening table.)
3. Place flare nuts on tube ends before preparing them with a flaring tool. Use the flare nuts that are mounted on the supplied outdoor and indoor units.
4. Connect the all ends of the tubing to the indoor and outdoor units. Notice the sign. All ends should correspond one by one.
5. Insulate each tube separately, and their unions, with at least 6mm thick of insulation. Wrap the refrigerant tubing, drain hose and electric cables together with a vinyl tape (UV protected).

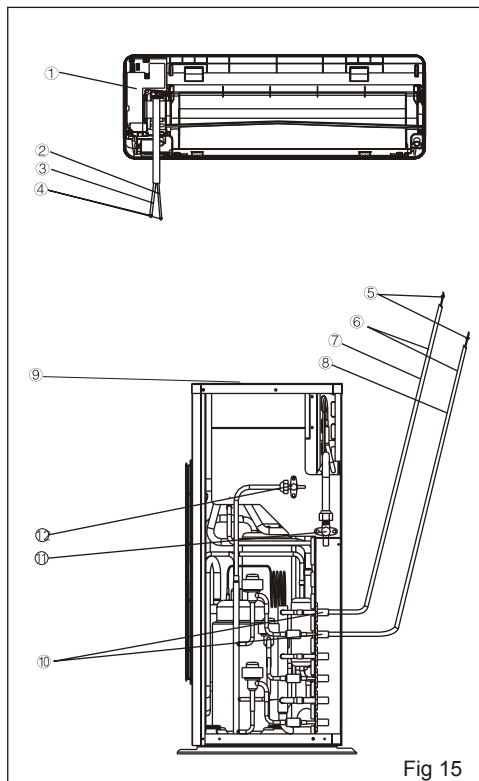


Fig 15

Caution!

When unscrewing the valve caps, do not stand in front of them or the spindles at any time, as the system is under pressure.

Fig 15

1. INDOOR UNIT
2. Liquid tube (small dia.)
3. Suction tube (large dia.)
4. Plugs
5. Flare nuts
6. Tubing between units
7. Suction tube
8. Liquid tube
9. OUTDOOR UNIT
10. Flare nuts
11. Suction valve (larger)
12. Liquid valve (small)

- NOTE:**
1. For unit use connections A, B and D
 2. For large indoor unit of 5.0KW Use the lower connection (unit D) and use the 3/8" - 1/2" transition (supplied)
 3. The electric control channel must match the tube channel.

Tightening torques of unions and valve caops:

TUBE SIZE	TORQUE
Liquid line 1/4"	15–20 N.M.
Suction line 3/8"	30–35 N.M.
Suction line 1/2"	50–54 N.M.
Suction line 5/8"	75–78 N.M.

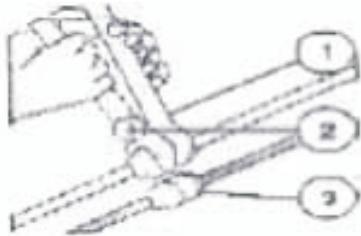


Fig 9

1. Wrench
2. Torque wrench
3. Union



Fig 10

To prevent refrigerant leakage, coat the flared surface with refrigeration oil

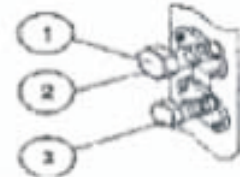
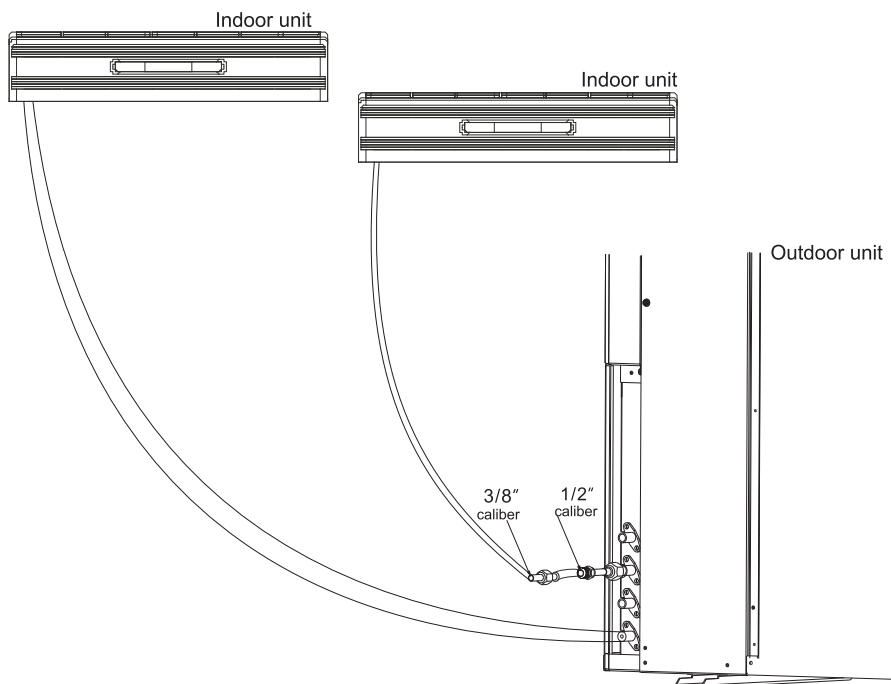


Fig 11

1. Suction valve
2. Service port
3. Liquid valve

The introduction of the rotational adapter:

The size of two calibers of the rotational adapter is different: one is 1/2" and the other is 3/8". The rotational adapter is applicable for AOM 243HX unit, the detail can be referred to the following figure.



Air Purging

Air and moisture remaining in the refrigerant system have undesirable effects as indicated below.

- Pressure in the system rises.
- Operating current rises.
- Cooling (or heating) efficiency drops.
- Moisture in the refrigerant circuit may freeze and block capillary tubing.
- Water may lead to corrosion of parts in the refrigeration system.

Therefore, the indoor unit and tubing between indoor and outdoor unit must be evacuated before the system is evacuated to remove any non-condensable gas and moisture from the system.

Air Purging With Vacuum Pump

Preparation

- Check that each tubing (both liquid and gas side tubes) between indoor and outdoor units have been properly connected and all wiring for the test run has been completed. Remove the service valve cap screw from the gas and the liquid side on the outdoor unit. Notethat the liquid side and the gas side service valves on the outdoor unit are kept closed at this stage.

- Do a leak test of all joints of the tubing (both indoor and outdoor) and both gas and liquid side service valves. Bubbles indicate a leak. Be sure to wipe off the soap with a clean cloth.
- After the system is found to be free of leaks, relieve the nitrogen pressure by loosening the charge hose connector at the nitrogen cylinder. When the system pressure is reduced to normal, disconnect the hose from the cylinder.

Leak Test

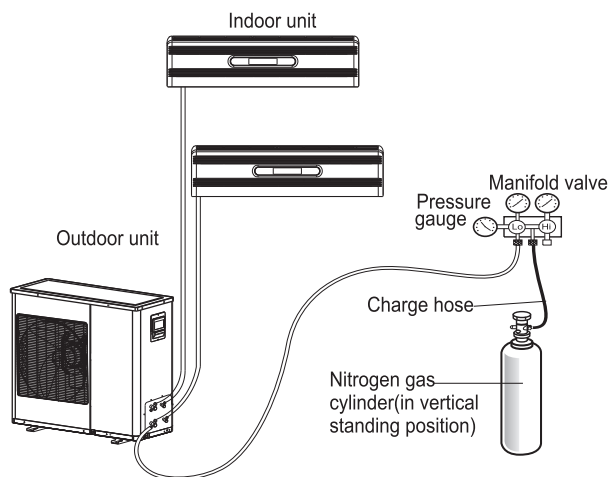
- Connect the manifold valve (with pressure gauges) and dry nitrogen gas cylinder to this service port with the charge hose.

CAUTION

Be sure to close the manifold valve for air purging. If it is not available, use the stop valve for this purpose. The high and low manifold valves must always be kept closed.

- Pressurize the system to no more than 150 P.S.I.G. with dry nitrogen gas and close the cylinder valve when the gauge reading reaches 150 P.S.I.G. Next, test for leaks with the liquid soap.

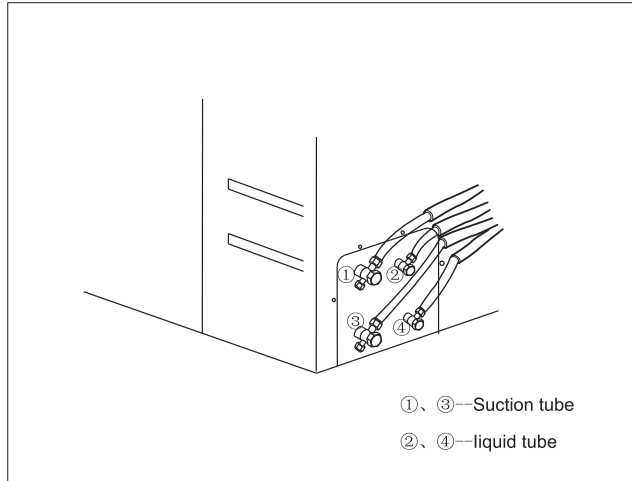
To avoid nitrogen being drawn into the refrigerant system in a liquid state, the top of the cylinder must be higher than its bottom when you pressurize the system. Usually, the cylinder is used in a vertical standing position.



Installation

Soapwater method

- (1) Remove the cap from the gas side and liquid side valves.
- (2) Remove the service port cap from the gas side valve.
- (3) Turn the gas side valve counter-clockwise approximately 90°, wait for about 2~3 seconds, and close it.
- (4) Apply a soapy water or alcohol detergent on the indoor and outdoor connections by using a brush to check for leakage of the connections.
- (5) If bubbles come out, the pipes have leakage.



Evacuation

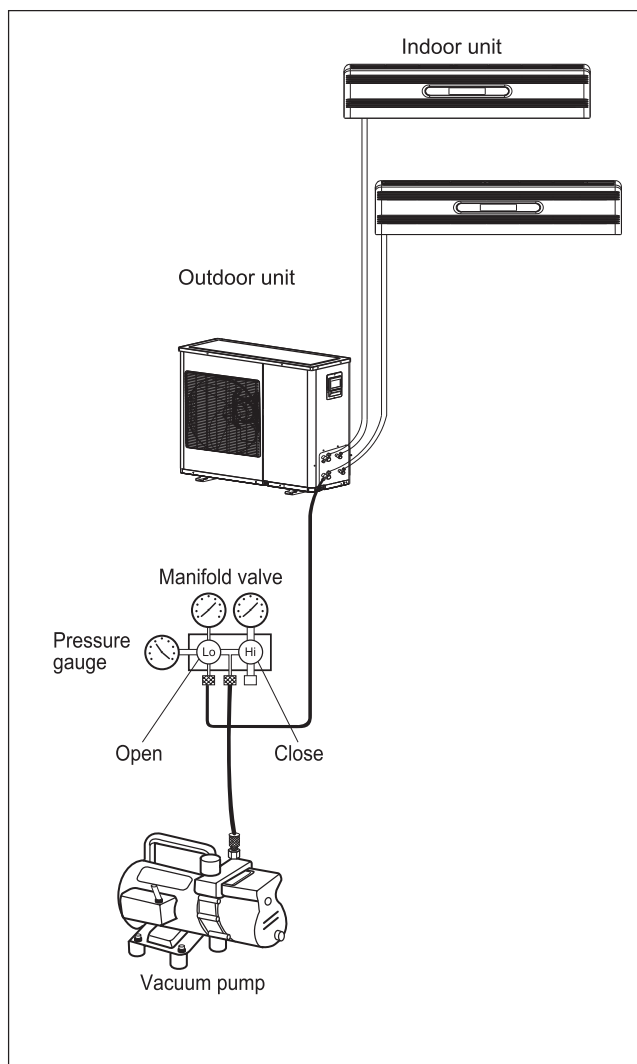
- Connect the charging hoses and disconnect them in the preceding steps to the vacuum pump to evacuate the tubing and indoor unit. Confirm the "Lo" knob of the manifold valve is open. Then, run the vacuum pump. The operation time for evacuation varies with tubing length and capacity of the pump. The following table shows the time required for evacuation.

Required time for evacuation when 30gal/h vacuum pump is used	
If tubing length is less than 10 m (33 ft)	If tubing length is longer than 10 m (33 ft)
10 min. or more	15 min. or more

- When the desired vacuum is reached, close the "Lo" knob of the manifold valve and stop the vacuum pump.

Finishing the job

- With a service valve wrench, turn the valve stem of the liquid side valve counter-clockwise to fully open the valve.
- Turn the valve stem of the gas side valve counter-clockwise to fully open the valve.
- Loosen the charging hoses and connect both gas sides slightly to release the pressure, then remove them.
- Replace the flare nut and its bonnet on the gas side service port and fasten the flare nut securely with an adjustable wrench. This process is very important to prevent leakage from the system.
- Replace the valve caps at both gas and liquid side service valves and fasten them tight. This completes the purging with a vacuum pump. The air conditioner is now ready to test run.



Self Diagnosis Functions

Our company has provided the thoughtful services for customers , and the air conditioner had been installed self diagnosis system to display the code for failure.

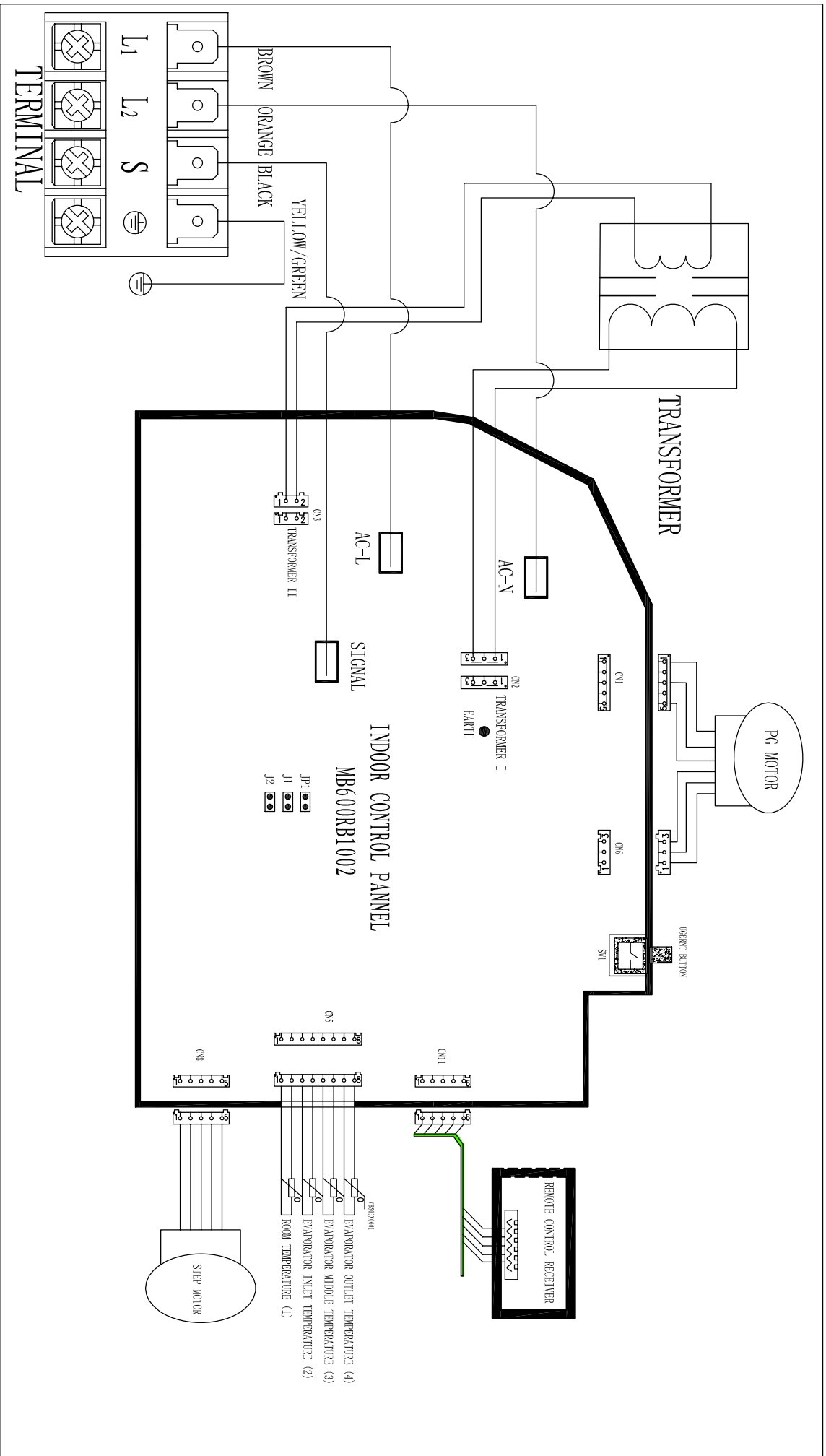
(1) Indoor unit fault shows as following:

Failure	Failure code
Communication failure	F1
Failure of room temperature sensor.	F2
Failure of tube-exit temperature sensor	F3
Failure of tube-entry temperature sensor	F3
Failure of tube-midpoint temperature sensor	F3
Failure of PG fan	F4

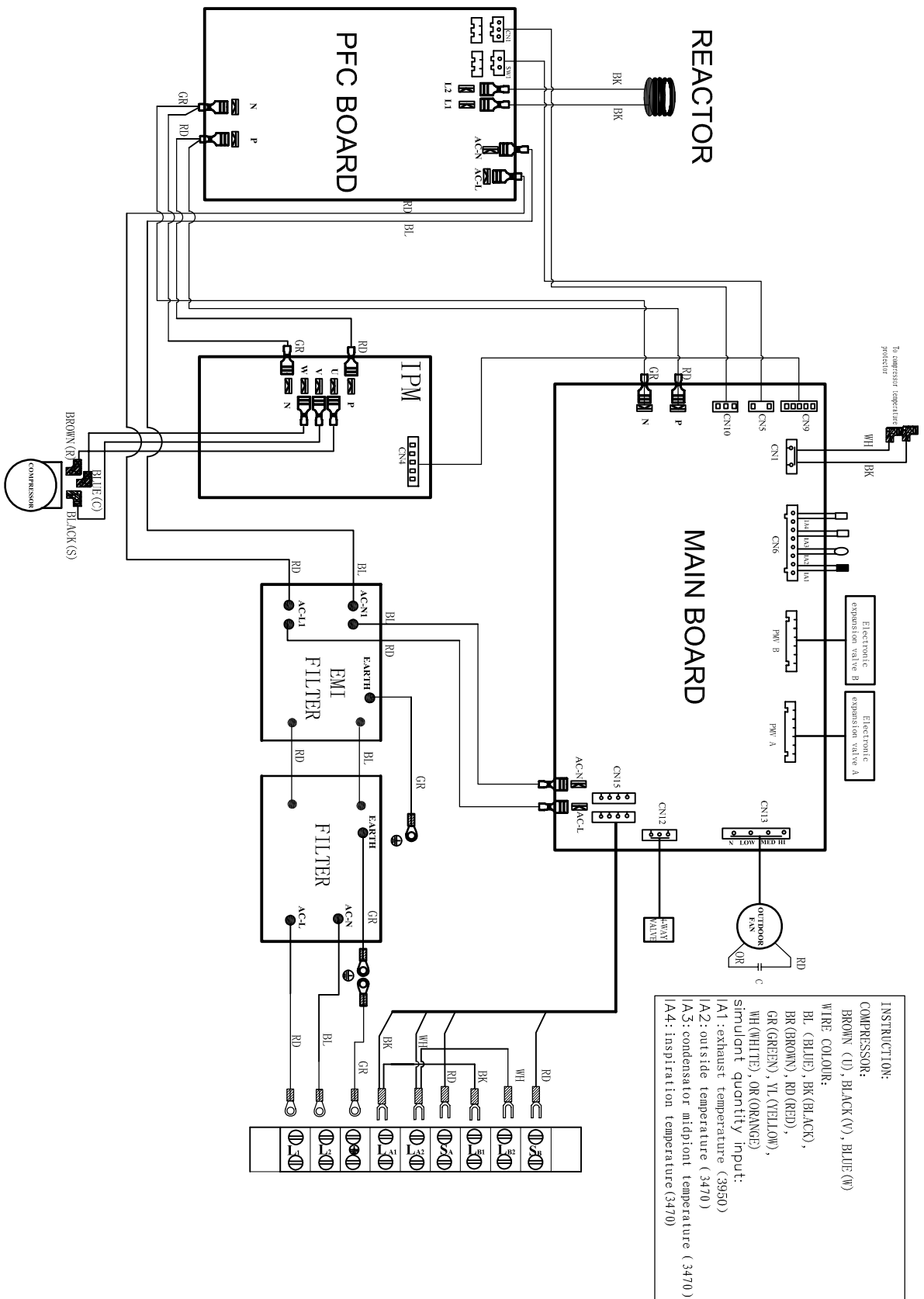
(2) Outdoor unit fault shows as following:

Fault	Fault code
Fault of outdoor unit transducer module protecting.	P2
Outdoor unit AC input too big.	P3
Outdoor unit compressor exhaust temperature too high, outdoor environment temperature ultra warm , compressor outer cover temperature switch disconnection .	P4
The outdoor machine direct current bus bar is unusual in voltage.	P7
Fault of lack refrigerant or fault of reversing valve.	P8
Fault of the outdoor temperature sensor.	F6
Fault of outdoor unit drive, fault of compressor start.	FC

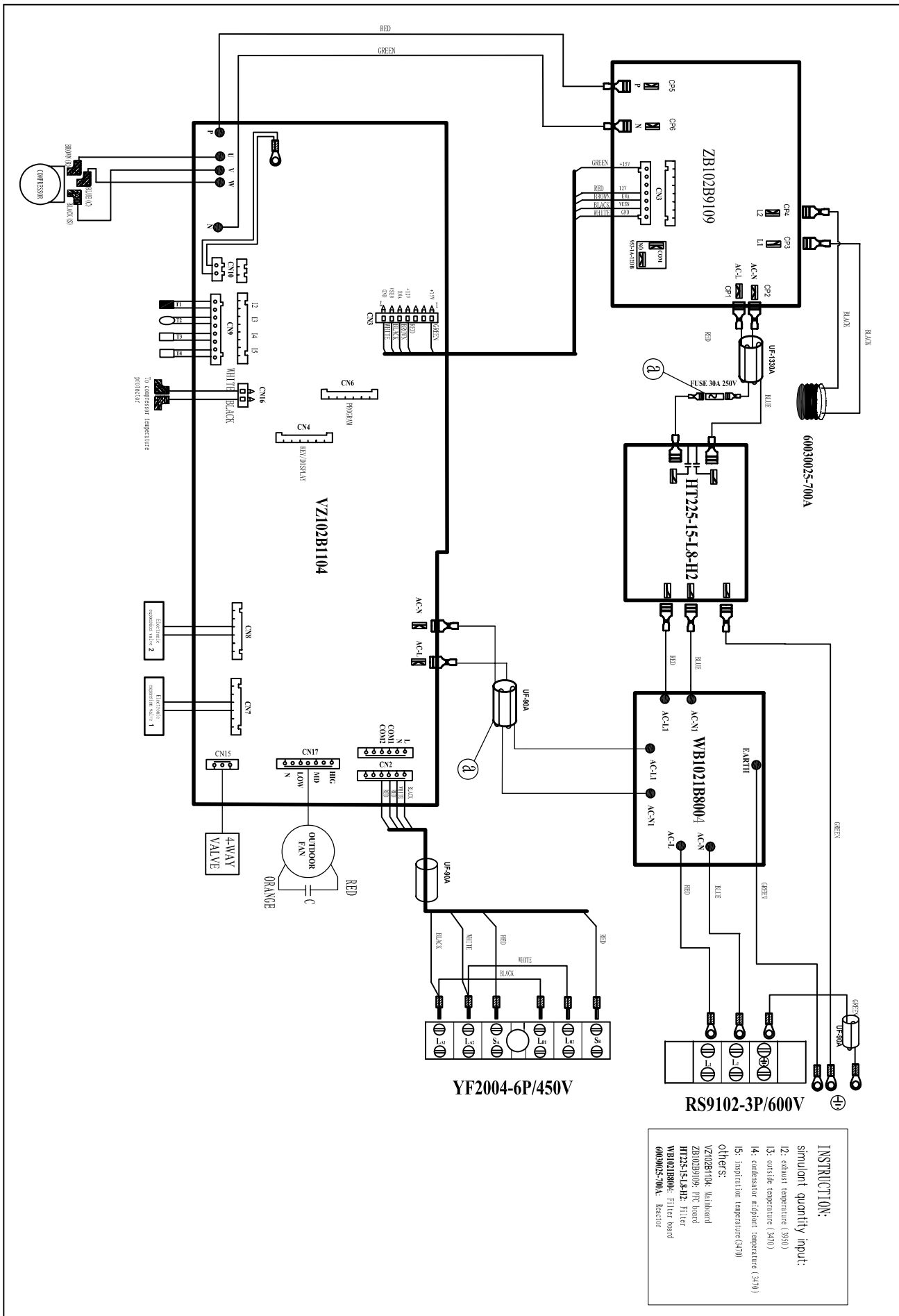
AWM093HX & AWM123HX indoor wire diagram



AOM183HX outdoor wire diagram



AOM243HX outdoor wire diagram



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